

REMARKS

This paper is in response to the office action mailed November 3, 2003. Claims 1-3, 5-7, 9, 10, 12-15, 17, 18, 21 and 22 remain under consideration in the application. Claims 7, 9, 10, and 12 have been currently amended. Claims 8, 11 and 19 have been cancelled. Claims 21 and 22 have been newly added. No new matter has been added. Reconsideration and further examination of the application is respectfully requested.

The invention relates to a motion control system comprising a stepper motor mechanically coupled to a DC motor, and operated in various modes. A scanner incorporating such a motion control system is claimed, as well a method of motion control.

In the claims:

Claims 1-3, 5-15, and 17-19 have been rejected under 35 USC 103(a) as being unpatentable over Kollmorgen Corporation (British Pat. No. 1,440,300) in view of Barrett (U.S. Pat. No. 5,627,438), Mitchell, et al. (U.S. Pat. No. 6,081,091), and Kirita (U.S. Pat. App. No. 2001/0040706). Each of the claim rejections is discussed in turn.

Applicant respectfully traverses the rejection of claim 1 because the examiner has not established a *prima facie* case of obviousness under 35 U.S.C. §103(a). The examiner relies on Barrett for disclosing "motors being used one at a time" (paper 8, page 2). However, in establishing a *prima facie* case of obviousness, "[i]t is insufficient that the prior art disclosed the components of the patented device, either separately or used in other combination; there must be some teaching, suggestion, or incentive to make the combination made by the inventor." *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 15 U.S.P.Q.2d 1321 (Fed. Cir.), *cert. denied*, 111 S. Ct. 296 (1990). "If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." (MPEP 2143.01) Barrett does not teach operating coupled stepper and DC motors one at a time, and in fact, such an arrangement would be incompatible with Barrett's invention. The vehicle described in Barrett achieves much of its efficiency by operating in a pulsed mode, alternating "between a tractive and coasting state." (column 4, line 7) A stepper motor, by its nature, does not coast well, and is therefore not useful in a "coasting state." The proposed combination would

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destroy the function of Barrett. Consequently, "there is no suggestion or motivation to make the proposed modification" and the examiner's *prima facie* case fails. (MPEP 2143.01)

Claims 2, 3, and 5 depend from claim 1 and add further limitations, and are thus also believed allowable.

Claim 6 depends from allowable claim 5 and adds further limitations, and is thus also believed allowable.

Applicant respectfully traverses the rejection of claim 7. Claim 7 recites a scanner having coupled DC and stepper motors and a scanning mechanism coupled to at least one of the motors, and has been amended to include the limitation that the scanner is operated with only one of the motors providing motive power and the other motor de-energized. Claim 7 is believed allowable for the reasons given in the discussion of claim 1 above, and for the additional reason that the Barrett reference is nonanalogous art and should not be considered prior art in this case. Barrett is concerned with energy efficiency in vehicle propulsion (see Abstract), and not with the positioning and control of small machine components such as the scanner of claim 7.

Claim 8 has been cancelled.

Claims 9, 10, and 12 now, after amendment, depend from allowable claim 7 and add further limitations, and are thus also believed allowable. Claim 11 has been cancelled.

Claim 13 depends from allowable claim 12 and adds further limitations, and is thus believed allowable.

Claim 14 claims a method of motion control comprising energizing only one of coupled DC and stepper motors. As explained in the discussion of claim 1 above, the examiner has not made out a *prima facie* case of obviousness, because Barrett is improperly cited to show "motors being used one at a time". (paper 8, page 2) The examiner has not pointed out any incentive or motivation for combining the references cited, and because the proposed combination would render the invention of Barrett unworkable, "there is no suggestion or motivation to make the proposed modification." (MPEP 2143.01)

Claims 15, 17, and 18 depend from allowable claim 14 and add further limitations, and are thus also believed allowable.

Claim 19 has been cancelled.

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Claims 21 and 22 are newly added. Claim 21 is an apparatus claim that parallels claim 1, but adds the limitations that the motion control system is operated with only the stepper motor providing motive power and the DC motor de-energized when resolution is of primary importance and that the motion control system is operated with only the DC motor providing motive power and the stepper motor de-energized when speed is of primary importance. These additional limitations find support at page 3, line 3 through page 4, line 19 of the specification. None of the prior art the examiner has cited discloses these limitations, and thus claim 21 is believed allowable over the cited art.

Similarly, claim 22 parallels method claim 14, and adds the limitations of energizing only the stepper motor when resolution is of primary importance and energizing only the DC motor when speed is of primary importance. These additional limitations find support at page 3, line 3 through page 4, line 19 of the specification. Because none of the prior art cited by the examiner discloses these limitations, claim 22 is believed allowable over the cited art.

The examiner has made of record but not relied upon Barrus et al. (U.S. Pat. No. 6,082,914). This reference, even when combined with the other cited references, does not complete a *prima facie* case of obviousness.

Applicant believes this application is in condition for allowance and such action is earnestly solicited.

Respectfully submitted,

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